## REMARKS

Favorable reconsideration of this application is respectfully requested.

Claims 1-26 are pending in this application. Claims 1-12, 18, 19, and 22-26 stand withdrawn from consideration as directed to a non-elected invention. Claims 13-16, 20, and 21 were objected to for informalities. Claims 13-17, 20, and 21 were rejected under 35 U.S.C. § 112, second paragraph. Claims 13 and 17 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. patent 5,895,939 to Ueno. Claims 14-16 were rejected under 35 U.S.C. § 103(a) as unpatentable over Ueno. Claims 20 and 21 were rejected under 35 U.S.C. § 103(a) as unpatentable over Ueno in view of U.S. Patent Application Publication 2002/0047125 to Fukuda et al. (herein "Fukuda"). The above-noted objections and rejections are herein traversed as now discussed.

Addressing first the objection to claims 13-16, 20, and 21, those claims are amended as suggested in paragraph 2 of the Office Action, which amendments are believed to address the objection to those claims.

Addressing now the rejection of claims 13-17, 20, and 21 under 35 U.S.C. § 112, second paragraph, those claims are herein amended to clarify the recitations to the "low concentration" and "high concentration" refer to an "impurity" concentration, and make other clarifications. The amendments to the above-noted claims are believed to address the outstanding rejection thereto under 35 U.S.C. § 112, second paragraph.

Addressing now the above-noted prior art rejections, the claims as currently written are believed to clearly distinguish over the applied art.

Each prior art rejection cites Ueno to disclose the features of independent claim 13. Applicants traverse that position and respectfully submit the claims as written are patentable over Ueno.

Independent claim 13 is herein amended to clarify certain language therein, and the claim amendments are believed to be supported by the original specification at Fig. 4 and at page 21, line 10 to page 22, line 25. With reference to Fig. 4 in the present specification as a non-limiting example, a silicon carbide semiconductor device includes a lower deposition film 2, a high concentration gate region 31, and an upper deposition film including a low concentration gate region 11, a high concentration source region 5, and a low concentration base region 4.

Moreover, as shown for example in Fig. 4 in the present specification as a non-limiting example, the low concentration n-type base region 4 provided in the low concentration p-type layer (corresponding to the claimed "low concentration gate region of the second conductivity type") 32 is wider than the high concentration $p^+$ type layer 31. Amended independent claim 13 clarifies such a feature by reciting "a low concentration base region of the first conductivity type formed on the first region and having a second region wider than the first region and being doped less than the high concentration source region of the first conductivity type". With such a claimed structure, resistance components from the parts can be reduced and on-resistance can be decreased.[1] Applicants submit Ueno does not disclose or suggest such a claimed structure.

Moreover, according to the claims as written the silicon carbide semiconductor device includes a "single layer lower deposition film . . . which has lower impurity concentration than a high concentration silicon carbide substrate". Such a lower deposition film can, for example, operate as a low concentration n-type drift layer. Further, according to claim 13 the "high concentration gate region of the second conductivity type" is formed on the surface of the single low concentration lower deposition film. Thereby, not the lower deposition film but the low concentration gate region of the second conductivity type and the low

[1] See for example the present specification at page 22, lines 13-25.

concentration base region are formed on the single layer lower deposition film. In that respect applicants also note the low concentration base region differs in function from the low concentration lower deposition film.

In contrast to such a structure, in the MOSFET shown in Fig. 3A of Ueno, the $n^-$ type drift layer 32 is divided into an upper layer and a lower layer and the $p^+$ buried regions 40 are formed in the lower layer. Thereby, Ueno also does not disclose or suggest the above-noted structure.

One basis for the outstanding rejection also indicates in citing Ueno the "(whole top layer 32) wider than the first region (arbitrary region between regions 40)".[2] In reply to that statement applicants note in the MOSFET shown in Fig. 3A of Ueno the low concentration p-type layer or gate region is not formed on each of left and right sides of the upper layer-side n-side drift layer.

Moreover, the MOSFET shown in Fig. 3A of Ueno has a so-called "trench MOSFET" structure and a trench 35 is formed in a central portion of the MOSFET. Due to this, electrons flowing in the MOSFET shown in Fig. 3A of Ueno enter an n-type drift layer 32 longitudinally from a heavily doped n-type source region 14 that is in contact with a source electrode 38 via a p-type base layer 33 and flows in a drain electrode 39.

In the MOSFET shown in Fig. 3A of Ueno, a $p^+$ buried region 40 is formed at a deeper position than the trench 35. With that configuration, if a reverse voltage is applied between the source electrode 38 and the drain electrode 39, a depletion layer expands from a p-n junction between the p-type base layer 33 and the n-type drift layer 32 (Ueno at column 8, lines 34 to 37). By applying a higher voltage than the voltage that expands the depletion layer to $p^+$ buried regions 40, the depletion layer further expands below the $p^+$ buried regions 40 to thereby relax the electric field (Ueno at column 8, lines 37 to 40).

[2] Office Action of June 24, 2008, page 4, lines 8-9.

In contrast to Ueno, as shown in Fig. 4 of the present specification as a non-limiting example, no trench need be formed in the present invention. Due to this, in the non-limiting embodiment shown in Fig. 4, electrons flow laterally from the high concentration $n^+$ source region 5 via the low concentration gate region 11 and via the low concentration $n^-$ type base region 4, and flow longitudinally into the low concentration $n^-$ type drift layer 2.

The present invention can thereby realize a device having high blocking voltage by the following constitution.

Also as shown in Fig. 4, if a reverse voltage is applied to between the source electrode 9 and the drain electrode 10, the depletion layer expands from a p-n junction between the high concentration $p^+$ type layer 31 and the n-type drift layer 2 to thereby relax the electric field. That results because the $p^+$ type layer 31 is equal in potential to the source electrode 9. In contrast, in the MOSFET shown in Fig. 3A of Ueno, the depletion layer expands not from the $p^+$ region 40, but from the p-n junction between the p-type base layer 33 and the n-type drift layer 32 to thereby relax the electric field. That results because the $p^+$ region 40 is electrically isolated from the source electrode.

In such further ways, the present invention differs from Ueno in the function of the $p^+$ region in the drift layer in the case of applying the reverse voltage.

In view of the foregoing comments, applicants respectfully submit independent claim 13 as currently written positively recites features neither taught nor suggested by Ueno.

Moreover, with respect to the rejection under 35 U.S.C. § 103, the outstanding Office Action further states:

> Ueno further discloses a silicon carbide semiconductor device (Fig. 1), wherein a low concentration gate region (top or bottom layer 13) (col. 7, lines 11-13) . . ..[3]

[3] Office Action of June 24, 2008, page 5, last full paragraph.

In reply to that grounds for the rejection applicants further note Ueno notes at column 7, lines 11-13 that the layer 13 in Fig. 1 is a "p-type base layer", in contrast the position noted above.

Moreover, the layer 13 shown in Fig. 1 of Ueno does not correspond to the claimed "low concentration gate region of the second conductivity type" (for example, low concentration gate region 11 shown in Fig. 4 of the present specification). Particularly, the thickness of the layer 13 shown in Fig. 1 of Ueno has an effect on resistance of current flowing longitudinally from the source region 14 toward the $n^-$ type drift layer 12 in the layer 13. According to the present invention, in contrast, as shown in Fig. 4, the resistance of the current flowing in the low concentration gate region 11 depends on the lateral dimension from the high concentration $n^+$ source region 5 to the low concentration $n^-$ type base region 4.

Thereby, although both the layer 13 shown in Fig. 1 of Ueno and the low concentration gate region 11 shown in Fig. 4 of the present specification are both p-type semiconductor layers, they completely differ in the function and the influence of the thickness.

In such ways the outstanding rejection is further misconstruing the disclosure in Ueno relative to the claims as written.

Moreover, applicants respectfully submit no disclosures in Fukuda were cited with respect to the above-noted features, and no disclosures in Fukuda are believed to cure the above-discussed deficiencies of Ueno.

In view of the present response applicants respectfully submit amended independent claim 13, and each of the claims dependent therefrom, patentably distinguishes over Ueno.

Applicants also point out dependent claims 18, 19, and 22 have been withdrawn from consideration, but those dependent claims depend from independent claim 13. That is, independent claim 13 is generic to those withdrawn claims 18, 19, and 22. As independent

claim 13 is allowable as noted above, reinstatement of withdrawn claims 18, 19, and 22 at this time is believed to be proper.

In view of the present response applicants respectfully submit each of claims 13-22 as currently written is allowable over the applied art and should be passed to issue.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

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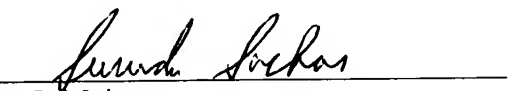

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